

THE BORDEN COMPANY

WARREN, OHIO, U. S. A.

Cable Address
"BORDEN" Warren
Iron Age Code on page 8

Manufacturers of Tools for Cutting and Threading
Metal Pipe

Other Codes Used
Western Union, ABC

Products

PIPE THREADERS

PIPE CUTTERS

Quality

Every tool produced by this company is made from the best raw materials obtainable (malleable iron and steel), carefully fabricated by trained workmen in a factory excellently equipped with the most modern machinery.

U. S. Government Specification

Perhaps the best evidence of the sterling quality of our product is the fact that the United States government specified our tools during the war, and used them almost exclusively.

Factory Equipment and Personnel

The factory in which our tools are manufactured is equipped with modern labor saving machinery of all sorts. Our men are contented and well trained, and many of them have been with us for more than ten years. This gives protection against the delays caused by labor trouble and insures careful workmanship.

Member Rice Leaders of the World Association

Another convincing proof of the quality of our tools is the fact that this Company is a member by invitation of the Rice Leaders of the World Association. Honor, Quality, Strength, and Service are the four recognized qualifications for membership in this body; or in other words, a reputation for honorable business dealings; an honest product honestly represented; responsible financial standing; and a record for conducting business promptly and efficiently.



Foreign Business

For many years we have been shipping our product into every country in the world.

Our Export Department is capable and trained. Good packing and intelligent handling of our goods intended for export are assured. We stand at the service of the foreign buyer.

Correspondence

It is our custom to answer correspondence in the same language in which the customer writes to us.

The translating is done in our own export department, eliminating delay and making certain the proper kind of service.

Printed Matter

We are glad at all times to send prospective customers copies of our complete catalogue. Please state whether you wish the edition in English or the Export edition.

"Improved Ohio" Pipe Threaders

These tools possess the utmost simplicity and are without projecting handles or loose parts. They are as strong as the old-style solid screw plates, and yet they are easily adjusted to thread many sizes of pipe merely by changing dies.

Operation

The operation of the "Improved Ohio" tools can be understood easily by examining the illustrations. The upper (die) plate and the lower (guide) plate have bevelled edges, against which fit two locking clamps, actuated by two hand-wheels on the handle lugs.

When these hand-wheels (or lock nuts) are tightened, the clamps lock against the bevelled edges of the die and guide plates, holding them absolutely rigid. This lock transforms the adjustable die stock into the equivalent of one solid piece during the threading operation. There is nothing to break.

Ease of Adjustment

A mere turn of the hand-wheel releases the lock, and the adjusting plates can be turned with a slight movement of the thumb and fingers.

Pipe sizes are indicated in plain figures. The dies are adjusted by merely turning the top plate.

The extraordinary simplicity of the "Improved Ohio" pipe threaders makes them well adapted for use by all kinds of labor, skilled or unskilled.



FIG. 1. FRONT VIEW OF "IMPROVED OHIO" PIPE THREADER

Construction

The adjusting plate for holding and setting the dies is machined by a special process which insures absolute accuracy. Adjustable pipe guides for centering the pipe are of similar construction to the die adjusting plate. The die chasers, or segments, are easily ground when dull, like any edged tool.

All the parts are made from the highest grade of malleable iron and steel. Vanadium steel is used in the dies, hardened by our special process—the same as that used in our "Beaver" Easy Working Pipe Threaders.

Twenty years' experience in making pipe cutting and threading tools only, combined with our skilled personnel and modern facilities, is ample proof and guarantee of the service "Improved Ohio" pipe tools will render you.

Cut-Off Attachment

The experience of all authorities has shown that it is impossible to incorporate a satisfactory cutting-off device in a pipe threading tool. For this reason we do not furnish a cut-off attachment with "Improved Ohio."

We earnestly recommend the use of the "Beaver" Square End Pipe Cutter (described on a following page) for cutting pipe.

Larger Sizes of Pipe

To thread pipe larger than 4 in. (101.6 mm.) we recommend "Beaver" Easy-Working Die Stocks, described on the following page.

All "Beavers" are one-man tools, even up to the 12 in. (305 mm.) size.



FIG. 2. METHOD OF LOCKING
A turn of the hand-wheels locks dies and bushings easily and positively

TABLE I. PRICES AND SPECIFICATIONS OF COMPLETE "IMPROVED OHIO" DIE STOCKS

Tool No.	Threading Range		Weight (Net)		Weight (Export)		List Price dollars	Code Word
	in.	mm.	lb.	kg.	lb.	kg.		
C53	1/4 to 1 1/4	6.4 to 31.8	12	5.4	18	8.2	17	ACGYB
C54	1 to 2	25.4 to 50.8	16 1/2	7.5	25	11.3	22	ACHAJ
C55	1 1/2 to 2	12.7 to 50.8	17 1/2	7.9	28	12.7	25	ACHBA
C56	1 3/4 to 3	44.5 to 76.2	40	18.1	58	26.3	40	ACHCI
C57	1 to 3	25.4 to 76.2	42	19.1	60	27.2	47	ACHCF
C58	2 1/4 to 4	57.2 to 101.6	52	23.6	75	34.0	55	ACHFI

*1/8-in. (3.2 mm.) dies can be furnished upon request, at extra cost.

If left hand dies are desired, use code word "LEFTO".

"Beaver" Easy-Working Die Stocks

Our "Beaver" Die Stocks are recognized as leaders in the field of high-grade labor-saving pipe threaders. Some of the factors which contribute to the supremacy of "Beaver" Tools are enumerated below.

THE PLANT—In which "Beavers" are made is large and completely equipped with up-to-date machinery. The manufacturers are specialists in the field of easy-cutting pipe tools.

The entire organization; its resources, energy, and study are devoted to making "Beaver" Tools the best that can be made.

"BEAVER" THREADERS ARE EASY WORKERS—Narrow, receding dies are used, which automatically move outward as the thread advances, so that less metal is removed and the work grows continually easier. With "Beaver" Die Stocks 2-in. (50,8 mm.) steel pipe may be threaded easily with one hand; and 4, 6, 8, 10 and 12-in. (102, 152, 203, 254 and 305 mm.) pipe may be threaded by one man.

NO CHANGING DIES—Because of the narrow, lathe-like chasers, "Beaver" Die Stocks will thread several sizes of pipe—a feat not possible with old style die construction. The dies are instantly adjusted to any size of pipe. This eliminates the nuisance of having to fumble around in a dark corner with greasy hands, looking for the proper set of dies.

NO BUSHINGS—"Beaver" Die Stocks, 2-in. (50,8 mm.) and smaller, use a self-centering chuck—thus eliminating troublesome bushings.

"BEAVERS" ARE ADJUSTABLE—You "move the handle—that's all!" No dies to change up to four inch (101,6 mm.) sizes; no bushings up to two inch (50,8 mm.). Your men can cut a thread with "Beavers" while changing dies and bushings in other tools. This saving in time aids in making "Beavers" the most economical tools.

GUARANTEE—Every "Beaver" tool is guaranteed to satisfy in every respect. "The user must be pleased" is the "Beaver" policy.

No. C3 "Beaver Jr."

The "Beaver Jr." is an extremely simple and effective tool, greatly improved in design as compared with similar tools long used in Europe. It consists of one ratchet handle, and individual die heads from $\frac{1}{8}$ to 1 in. (3,2 to 25,4 mm.) inclusive. It is ratchet-operated and can be used close to walls, rafters, in corners, against ceilings, and in other difficult places.

Separate heads can be furnished to cut left-hand threads.



FIG. 3. NO. C3 "BEAVER JR." RATCHET
 $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, and 1 in. (3,2, 6,4, 9,5, 12,7, 19,1, and 25,4 mm.)

No. C6 "Beaverette"

The "Beaverette" is an unusual example of the "Beaver" principle of not changing dies. There is a difference in thread pitch in the range of this tool— $\frac{1}{4}$ and $\frac{3}{8}$ in. (6,4 and 9,5 mm.) are 18 threads to the inch (1,41 mm.) pitch, while $\frac{1}{2}$ and $\frac{3}{4}$ in. (12,7 and 19 mm.) are 14 threads to the inch (1,81 mm.) pitch. Therefore two sets of dies are required. Both sets, however, are operated by the same control plate, through an ingenious arrangement of slots in which the dies ride in such a way that the simple setting to the desired size retires the set not in use. The No. C6 is the regular tool furnished to thread American Briggs Standard or Whitworth Pipe Standard for export. The No. C7 is for export only for English Electrical Conduit, sizes $\frac{1}{2}$ to 1 in. (12,7 to 25,4 mm.) outside diameter.



FIG. 4. NO. C6
"BEAVERETTE"
 $\frac{1}{4}$ to $\frac{3}{4}$ in. (6,4 to 19,1 mm.)

No. C25

The "Beaver" No. C25 is the leader in the field of easy-working die stocks, and the pioneer of the large sizes described in this catalogue. Nearly 100,000 pipe users know its value, and it is the admitted standard of efficiency and easy-cutting in 2-in. (50,8 mm.) tools.

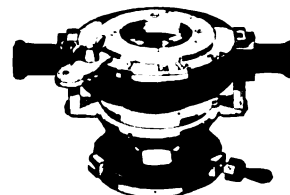


FIG. 5. NO. C25 PLAIN
1 to 2-in. (25,4 to 50,8 mm.)

This tool threads 1, $1\frac{1}{4}$, $1\frac{1}{2}$, and 2 in. (25,4, 31,8, 38,1, and 50,8 mm.) pipe without changing dies or bushings. It will cut running threads, pitched threads, and nipples.

LEFT HAND THREADS—The "Beaver" No. C25L is made to cut left-hand threads only (the regular No. C25 "Beaver" cuts right-hand threads only).

No. C26

The "Beaver" No. C26 is the same in construction and design as the No. C25 with the added advantages of a ratchet. With ratchet tools the operator can choose his position and utilize his weight to best advantage. No. C26L is made to cut left-hand threads only.

No. C41 and No. C61

While these tools are called die stocks, in reality they are efficient threading machines, being more powerful than the so-called hand pipe machines, and yet so light in weight as to be perfectly portable. The No. C41 threads $2\frac{1}{2}$ to 4-in. (63,5-101,6 mm.); the No. 61, $2\frac{1}{2}$ to 6-in. (63,5-152,4 mm.).

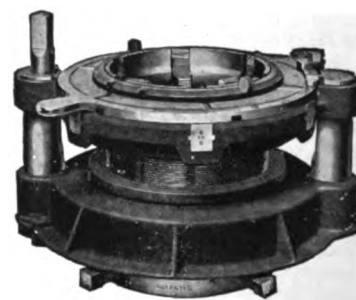


FIG. 6. NO. C61 GEARED
 $2\frac{1}{2}$ to 6 in. (63,5 to 152,4 mm.)

No. C80 and No. C90

These types are similar to Nos. C41 and C61. Carefully fitted bronze bushings at all bearing points minimize wear. A malleable jacket covers the gears, thus protecting the workmen as well as the tool. The driving pinion is supported at both ends, insuring strengthened rigidity. See sizes, weights, etc., below.

TABLE II. PRICE LIST

Name	Threads in. (mm.)	Net Weight, lb. (kg.)	List Price, dollars
No. C3 "Beaver Jr." Ratchet	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, 1 (3,2, 6,4, 9,5, 12,7, 19,1, 25,4)	8 (3,6)	24.00
No. C6 "Beaverette".....	$\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ (6,4, 9,5, 12,7, 19,1)	8 (3,6)	15.00
No. C7 "Beaverette".....	$\frac{1}{2}$ to 1 Eng. Elec. (12,7 to 25,4)	8 (3,6)	15.00
No. C25 Plain.....	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2 (25,4, 31,8, 38,1, 50,8)	22 (10,0)	30.00
No. C26 Ratchet.....	1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2 (25,4, 31,8, 38,1, 50,8)	27 (12,2)	35.00
No. C41 Geared.....	$2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4 (63,5, 76,2, 88,9, 101,6)	99 (44,9)	110.00
No. C61 Geared.....	$2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5 and 6 (63,5, 76,2, 88,9, 101,6, 114,3, 127, 152,4)	185 (84)	220.00
No. C80 Geared.....	$4\frac{1}{2}$, 5, 6, 7, 8 (114,3, 127, 152,4, 177,8, 203,2)	192 (87)	300.00
No. C90 Geared.....	9, 10, 11, 12 (229, 254, 279, 305)	233 (106)	500.00

"Beaver" Square-End Pipe Cutters

"Beaver" Square-End Pipe Cutters are recognized as the greatest improvement in pipe cutting tools in a generation. In fact, until these tools were introduced to the trade in 1911, real pipe cutters hardly existed. Pipe cutters in which wheels were used to force pipe apart gradually had long been considered unsatisfactory. A knife cutter was recognized as the proper method, but except in power machines its practical application had never been attained until the "Beaver" Square-End Pipe Cutter was invented.

Fundamental Features

The "Beaver" Square-End Pipe Cutter owes its success to its fundamental features. The knives have a guide riding ahead to limit the depth of the cut, and a continuous automatic feed. It is easy to understand that a bare knife on the end of a screw would dig into the pipe too deep and break.



FIG. 7. "BEAVER" CUTTING PRINCIPLE

Therefore, the "Beaver" Cutter has the cutting knives so formed that a guide limits the cut to just what the knife will stand.

Likewise, as the operator cannot continually feed the knives while turning the tool, the constant and continued feeding of a "Beaver" Cutter is obtained by a heavy spring that works all the time without attention from the user.

Operation

The "Beaver" Cutter is a lathe tool. The cutting is done by two knives which "turn" out a thin shaving of metal until the pipe is severed (See Fig. 7). The adjustment of the knives is entirely automatic and fool-proof.

Fig. 7 illustrates the cutting knives mounted in position. A section of the right hand cover plate is removed to show one of the powerful feed springs. The simple action of centering the tool on the pipe compresses these powerful springs, which automatically hold the knives against the pipe, and a shaving is "turned" off by the knives as the tool revolves.

Disadvantages of Wheel and Roller Cutters

The disadvantages of ordinary wheel and roller cutters are more serious than is often apparent. All users know of the trouble experienced in making them "track," and the labor involved in their operation, but proper consideration of the result of their use is often lacking.



FIG. 8. PIPE JOINT CUT OPEN TO SHOW COMPARISON BETWEEN "BEAVER"-CUT AND WHEEL-CUT PIPE
(Note burr on wheel-cut end.)

Wheel cutters raise a burr on the outside of the pipe, which makes it hard to start the threading dies. The dies start easily on pipe cut with a "Beaver" and the thread is straight because the die is bound to start straight. The inside burr raised by a wheel cutter reduces the area of pipe amazingly. Thus $\frac{1}{4}$ -in. (6.2 mm.) pipe is reduced 52 per cent.; 1-in. (25.4 mm.) pipe, 19 per cent., etc., when cut with wheel cutters. There is no loss of area in pipe cut with a "Beaver" Cutter. Its use is therefore approved by the National Board of Fire Underwriters, by railroads, and by all contractors who would avoid reaming and at the same time give full value in the pipe lines they install.

Nos. C1 and C5

The design of these tools is exceedingly simple, consisting of a strong malleable iron frame with a fixed "vee" centering-jaw operated by the screw handle. The cutting knives backed up by the heavy coil springs normally extend beyond

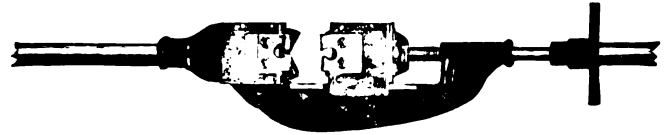


FIG. 9. NOS. C1 AND C5 "BEAVER" SQUARE-END PIPE CUTTERS

the guiding jaws. Therefore when the tool is centered on the pipe these knives are pushed back, compressing the feeding springs, and the tool is ready to operate without further feeding.

"Beaver" Square-End Pipe Cutters, Nos. C1 and C5, are now being used by nearly 100,000 plumbers, fitters, etc., who are very enthusiastic over these tools and who would not be willing, under any circumstances, to go back to the old style wheel cutters.

The knives give hundreds of cuts without re-grinding. Two extra sets are furnished with each tool. When dull they may be re-ground by the user (template and directions with each tool), or sent to us to be re-ground at a nominal charge.

Best of all, "Beaver" Square-End Pipe Cutters not only actually cut pipe as it should be cut, but they do so continuously and indefinitely. The construction is far stronger than that of ordinary wheel cutters, and "Beavers" will be found to outlast many sets of these ordinary tools. A trial will convince you of their unusual merits.

No. C10

This tool is a natural development of the smaller sizes. The same knife construction and automatic feed is used in

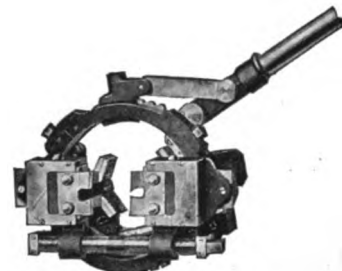


FIG. 10. NO. C10 "BEAVER" SQUARE-END PIPE CUTTER

the No. C10. The only difference lies in the introduction of a ratchet, which enables the operator to cut more easily the larger sizes of pipe. The frame of the No. C10 is divided into two principal parts: (1) a chuck, or gripping part, and (2) the cutting section which carries the knives and is revolved on the frame by a ratchet. The tool is a solid and complete unit of cast steel; it is bronze bushed and made to wear indefinitely.

No. C15

While the same principle is employed, the No. C15 "Beaver" Cutter is a good deal more of a machine than the smaller sizes, having four cutting knives against two in the smaller tools. Its range of $2\frac{1}{2}$ to 6 in. (63.5 to 152.4 mm.) without changing the knives makes it a most valuable tool to all contractors.

Because four cutting knives are used, it can cut 6-inch (152.4 mm.) stock almost as rapidly as smaller sizes of pipe.

TABLE III. PRICE LIST

No.	Cuts Pipe Sizes		Weight, Net		Weight, Shipping		List Price, Complete dollars	Code Word
	in.	mm.	lb.	kg.	lb.	kg.		
C1	$\frac{1}{4}$ to 1	3.2 to 25.4	8	3.6	10	4.5	18.00	ACEVO
C5	$\frac{1}{2}$ to 2	12.7 to 50.8	13	5.9	17	7.7	20.00	ACEX1
C10	$2\frac{1}{2}$ to 4	63.5 to 101.6	46	20.9	55	25.0	90.00	ACGAM
C15	$2\frac{1}{2}$ to 6	63.5 to 152.4	75	34	100	45.4	180.00	ACGEK